

WHAT IS CLAIMED IS:

1. A load store queue comprising:

a first table which stores in-order information about store instructions;

5 a second table which stores the addresses for and the store values of store instructions, the individual entries in said second table being retrieved by using said addresses as indexes;

10 a first retrieving unit which is connected to said first table and which, according to tag information about a load instruction, retrieves store instructions preceding said load instruction from the in-order information about the store instructions stored in said first table; and

15 a second retrieving unit which is connected between said second table and said first retrieving unit and which outputs a coincidence signal and the store value corresponding to said store instruction as a load value, when the store instruction read from said  
20 second table according to the address for said load instruction coincides with the store instruction supplied from said first retrieving unit.

2. The load store queue according to claim 1, wherein

25 said first table includes:

a plurality of tag entries which hold store tags serving as in-order information about store

instructions; and

valid flag entries which are caused to correspond to said tag entries and which hold valid flags.

3. The load store queue according to claim 2,  
5 further comprising:

a first pointer which indicates the top of a queue in said first table; and

a second pointer which indicates the bottom of the queue in said first table.

10 4. The load store queue according to claim 3, wherein the first selector, connected between said second pointer and said first table, supplies said store tag to the tag entry in said first table specified by said second pointer.

15 5. The load store queue according to claim 1, wherein said second table comprises:

a plurality of address entries which store said addresses; and

20 valid flag entries, tag entries for storing tags, and value entries for storing said store values which are caused to correspond to the address entries.

6. The load store queue according to claim 5, further comprising:

25 a multiplexer which receives a coincidence signal and a load value supplied from said second retrieving unit and which supplies said load value to a processor according to said coincidence signal.

7. The load store queue according to claim 6,  
wherein a second selector, connected to said first  
pointer and said first and second tables, supplies a  
store tag serving as retire information to the tag  
5 entry in said first table specified by said first  
pointer and specifies an entry in said second table  
using store addresses serving as retire information as  
indexes, the store address for and the store value of  
the specified entry being outputted to a data cache.

10 8. A load store queue comprising:

a first table which stores in-order information  
about store instructions and which includes a plurality  
of tag entries and valid flags corresponding to the tag  
entries;

15 a second table which holds store addresses serving  
as the addresses for store instructions, store tags  
serving as tag information about store instructions,  
and store values serving as the values of said store  
instructions and which enables said store tags and  
20 store values to be retrieved by using said store  
addresses as indexes;

a first pointer which indicates the top of a queue  
in said first table;

25 a second pointer which indicates the bottom of a  
queue in said first table;

a first selector which is connected between said  
second pointer and said first table and which supplies

said store tag to the tag entry in said first table specified by said second pointer;

5 a first retrieving unit which is connected to said first table and which, according to the load tag of a load instruction, retrieves store tags preceding said load tag from the store tags stored in said first table and outputs the retrieved store tags; and

10 a second retrieving unit which is connected between said first retrieving unit and said second table and which outputs not only a coincidence signal but also the store value corresponding to the store tag read from said second table as a load value, when the store tag read from said second table according to the address for said load instruction coincides with the  
15 store tag retrieved by said first retrieving unit.

9. The load store queue according to claim 8, further comprising:

20 a multiplexer which receives a coincidence signal and a load value supplied from said second retrieving unit and which supplies said load value to a processor according to said coincidence signal.

25 10. The load store queue according to claim 8, wherein a second selector, connected to said first pointer and said first and second tables, supplies a store tag serving as retire information to the tag entry in said first table specified by said first pointer and specifies an entry in said second table

using store addresses serving as retire information as indexes, the store address for and the store value of the specified entry being outputted to a data cache.